Electronic Version
Stylesheet Version v1.1.1

Claims

[c1] What is claimed is:

1. An electronically controlled load circuit for optimizing the energy transfer between a first circuit and a second circuit, the electronically controlled load circuit comprising:

a first inductor or resistor having a first terminal connected to a first node and a second terminal connected to a supply node or an AC ground node, wherein the first node is a first point of connection between the first circuit and the second circuit; and

a first varactor having a first terminal connected to the first node and a second terminal connected to a control signal.

[c2] 2.The electronically controlled load circuit of claim 1, further comprising a control signal generator for generating the control signal according to a selected center frequency in order to adjust the capacitance of the first varactor and optimize the energy transfer between the first circuit and the second circuit at the selected center frequency.

[c3] 3.The electronically controlled load circuit of claim 2,

further comprising:
a second inductor or resistor having a first terminal connected to a second node and a second terminal connected to the supply node or the AC ground node;
wherein the second node is a second point of connection between the first circuit and the second circuit; and
a second varactor having a first terminal connected to the second node and a second terminal connected to the control signal;
wherein the control signal generator generates the control signal according to the selected center frequency in order to adjust the capacitance of the first varactor and the second varactor and optimize the energy transfer between the first circuit and the second circuit.

[c4] 4.The electronically controlled load circuit of claim 3, wherein the first inductor or resistor and the second inductor or resistor are formed by a single inductor or resistor having a first terminal connected to the first node, a center tap terminal connected to the supply node or the AC ground node, and a second terminal connected to the second node.

[c5] 5.The electronically controlled load circuit of claim 2, wherein the control signal generator comprises:
a plurality of resistors connected in series between the supply node and ground; and

a plurality of switch elements connected between the terminals of the resistors and the control signal, each switch element being controlled by at least one bit of a digital control signal representing the selected center frequency and selectively enabling one of the different voltages between the terminals of the resistors to form the control signal according to the selected center frequency.

[c6] 6. A method for optimizing the energy transfer between a first circuit and a second circuit, the method comprising:
providing a first inductor or resistor having a first terminal connected to a first node and a second terminal connected to a supply node or an AC ground node, wherein the first node is a first point of connection between the first circuit and the second circuit;
providing a first varactor having a first terminal connected to the first node; and
adjusting the capacitance of the first varactor in order to optimize the energy transfer between the first circuit and the second circuit.

[c7] 7.The method of claim 6, wherein adjusting the capacitance of the first varactor further comprises adjusting the capacitance of the first varactor according to a selected center frequency in order to optimize the energy

transfer between the first circuit and the second circuit at the selected center frequency.

[c8] 8.The method of claim 6, further comprising:
providing a second inductor or resistor having a first terminal connected to a second node and a second terminal connected to the supply node or the AC ground node;
wherein the second node is a second point of connection between the first circuit and the second circuit;
providing a second varactor having a first terminal connected to the second node; and
adjusting the capacitance of the first varactor and the second varactor in order to optimize the energy transfer between the first circuit and the second circuit.

[c9] 9.The method of claim 8, wherein the first inductor or resistor and the second inductor or resistor are formed by a single inductor or resistor having a first terminal connected to the first node, a center tap terminal connected to the supply node or the AC ground node, and a second terminal connected to the second node.

[c10] 10.The method of claim 6, wherein adjusting the capacitance of the first varactor comprises:
providing a plurality of different voltages formed by a plurality of resistors connected in series between the supply node and ground; and

selectively connecting one of the different voltages to a second terminal of the first varactor according to the selected center frequency.

[c11] 11.The method of claim 6, further comprising adjusting the capacitance of the first varactor in order to match an output impedance of the first circuit with an input impedance of the second circuit.

[c12] 12. An electronically controlled impedance matching circuit comprising:
a first inductor or resistor having a first terminal connected to a first node and a second terminal connected to a supply node or an AC ground node, wherein the first node is a first point of connection between the first circuit and the second circuit; and
a first varactor having a first terminal connected to the first node and a second terminal connected to an control signal.

[c13] 13. The electronically controlled impedance matching circuit of claim 12, further comprising a control signal generator for generating the control signal according to a selected center frequency in order to adjust the capacitance of the first varactor and optimize the energy transfer between the first circuit and the second circuit at the selected center frequency.

[c14] 14.The electronically controlled impedance matching circuit of claim 13, further comprising:
a second inductor or resistor having a first terminal connected to a second node and a second terminal connected to the supply node or the AC ground node;
wherein the second node is a second point of connection between the first circuit and the second circuit; and
a second varactor having a first terminal connected to the second node and a second terminal connected to the control signal;
wherein the control signal generator generates the control signal according to the selected center frequency in order to adjust the capacitance of the first varactor and the second varactor and optimize the energy transfer between the first circuit and the second circuit.

[c15] 15.The electronically controlled impedance matching circuit of claim 14, wherein the first inductor or resistor and the second inductor or resistor are formed by a single inductor or resistor having a first terminal connected to the first node, a center tap terminal connected to the supply node or the AC ground node, and a second terminal connected to the second node.

[c16] 16.The electronically controlled impedance matching circuit of claim 13, wherein the control signal generator

comprises:

a plurality of resistors connected in series between the supply node and ground; and

a plurality of switch elements connected between the terminals of the resistors and the control signal, each switch element being controlled by at least one bit from a digital control signal representing the selected center frequency and selectively enabling one of the different voltages between the terminals of the resistors to form the control signal according to the selected center frequency.